

**CANADA-NEWFOUNDLAND  
WATER QUALITY MONITORING  
AGREEMENT**

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**ANNUAL WORK SCHEDULE  
2003-2004**

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**Water Resources Management Division  
Department of Environment  
St. John's, Newfoundland and Labrador**

**Ecosystem Science Division  
Environmental Conservation Branch  
Environment Canada  
Moncton, New Brunswick**

**Canada-Newfoundland  
Water Quality Monitoring Agreement  
Annual Work Schedule 2003-2004**

The attached Schedules A, B, C, D, and E outline work activities to be carried out during the current fiscal year under the Canada-Newfoundland Water Quality Monitoring Agreement. All five Schedules have been reviewed and approved by the Administrators of the Agreement.



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Geoff Howell  
Administrator, on behalf of  
Environment Canada



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Martin Goebel, P.Eng.  
Administrator, on behalf of  
Newfoundland and Labrador Environment

**Schedule A**  
**Agreement Committees**





**Schedule B**

**Station Location, Designation  
and Sampling Frequency**

**Index Station Location, Designation and Sampling Frequency 2003-2004**

Station #	Description	Latitude	Longitude	Sampled By	Samples/year	Remarks
<b><u>EASTERN REGION</u></b>						
NF02ZG0024	Tides Brook	47 07 39	55 15 55	P	2	
NF02ZK0005	Northeast River	47 16 23	53 50 25	P	2	
NF02ZL0029	Goulds Brook	47 30 18	53 17 28	P	2	
NF02ZM0004	Waterford River	47 31 19	52 48 29	P	4	
NF02ZM0009	Waterford River	47 31 46	52 44 34	P	4	
NF02ZM0014	Virginia River	47 35 02	52 41 29	P	12	
NF02ZM0015	Quidi Vidi Outlet	47 35 02	52 40 51	P	6	
NF02ZM0016	Rennies River	47 34 40	52 42 03	P	12	
NF02ZM0098	Virginia River	47 35 56	52 45 17	P	2	
NF02ZM0109	Mundy Pond	47 33 40	52 44 38	P	4	
NF02ZM0144	Kelly's Brook	47 34 28	52 42 45	P	4	
NF02ZM0175	Waterford River	47 31 34	52 45 48	P	4	
NF02ZM0176	South Brook	47 31 41	52 44 48	P	4	
NF02ZM0177	Rennies River	47 34 28	52 42 36	P	4	
NF02ZM0178	Learys Brook	47 34 21	52 44 21	P	4	RT
NF02ZM0179	Virginia River	47 35 47	52 42 06	P	4	
NF02ZM0180	Virginia River	47 35 59	52 42 02	P	4	
NF02ZM0181	Waterford River	47 32 53	52 43 09	P	12	
NF02ZM0182	Waterford River	47 31 07	52 51 21	P	2	
NF02ZM0183	Kelligrews River	47 29 45	53 01 03	P	2	
NF02ZM0184	Learys Brook	47 34 16	52 47 29	P	4	
NF02ZM0185	South Brook	47 29 37	52 51 02	P	4	
NF02ZN0002	Northwest Brook	46 45 33	53 23 25	P	2	
NF02ZN0004	Salmonier River	47 10 54	53 23 56	P	4	
NF02ZG0016	Garnish River	47 13 00	55 19 48	F	6	
NF02ZH0001	Pipers Hole River	47 55 51	54 16 25	F	6	
NF02ZK0001	Rocky River	47 13 38	53 34 09	F	6	
<b><u>CENTRAL REGION</u></b>						
NF02YM0004	South West Brook	49 55 15	56 13 45	P	4	
NF02YO0143	Exploits River	49 01 15	55 27 15	P	12	
NF02YO0142	Corduroy Brook	48 56 21	55 39 47	P	12	
NF02YO0001	Exploits River	48 55 27	55 39 21	P	12	
NF02YO0006	Peter's River	49 06 21	55 24 38	P	4	RT
NF02YO0020	Exploits River	48 56 55	55 54 56	P	6	
NF02YO0021	Exploits River	49 00 40	55 28 55	P	12	
NF02YO0107	Exploits River	48 45 34	56 35 32	P	4	
NF02YO0128	Exploits River	48 56 12	55 37 05	P	12	
NF02YQ0006	North W. Gander River	48 34 54	55 30 20	P	4	
NF02YQ0030	Gander River	48 59 41	54 52 04	P	6	
NF02YR0001	Pound Cove Brook	49 10 40	53 33 36	P	4	
NF02YR0021	Middle Brook	48 48 08	54 13 34	P	4	
NF02YS0001	Terra Nova River	48 30 27	54 12 43	P	6	
NF02YS0005	Southwest Brook	48 36 36	53 48 36	P	6	
NF02YS0011	Terra Nova River	48 38 27	54 02 11	P	6	
NF02YS0083	Northwest River	48 23 44	54 11 53	P	6	
NF02ZJ0024	Southern Bay River	48 22 24	53 40 19	P	4	
NF02ZF0020	Bay du Nord River	47 44 45	55 26 23	F	6	HS



**WESTERN REGION**

NF02YA0001	Ste. Genevieve	51 08 17	56 47 30	P	4	
NF02YE0005	Western Brook	49 49 49	57 51 23	P	4	
NF02YG0001	Main River	49 46 10	56 54 15	P	4	
NF02YH0018	Lomond River	49 24 07	57 43 49	P	4	
NF02YJ0004	Pinchgut Brook	48 47 51	58 03 43	P	4	
NF02YL0011	Humber River	49 20 54	57 14 07	P	6	
NF02YL0012	Humber River	48 59 01	57 45 40	P	6	
NF02YL0013	Corner Brook	48 56 40	57 56 12	P	6	
NF02YL0029	Wild Cove Brook	48 58 28	57 53 02	P	4	
NF02YN0001	Lloyds River	48 18 16	57 43 07	P	4	
NF02ZA0006	Grand Codroy R.	47 52 08	59 07 05	P	4	
NF02ZA0007	Crabbe's River	48 10 30	58 46 23	P	4	
NF02ZB0001	Isle aux Morts R.	47 36 50	59 00 33	P	4	
NF02ZB0005	Cinq Cerf Brook	47 42 40	58 08 47	P	4	HS
NF02ZC0001	Grandy Brook	47 51 25	57 44 00	F	4	HS
NF02ZD0003	Grey River	47 44 35	56 56 03	F	4	HS
NF02YC0001	Torrent River	50 36 44	57 10 05	F	4	
NF02YJ0006	Harrys River	48 34 32	58 21 48	F	4	

**LABRADOR**

NF02XA0001	Little Mecatina River	52 13 42	61 19 32	F	4	HS
NF03NF0013	Ugjoktok River	55 13 60	61 17 57	F	4	HS
NF03OC0012	Atikonak River	52 58 03	64 39 40	F	4	HS
NF03OD0011	East Metchin River	53 26 07	63 14 03	F	4	HS
NF03OE0001	Churchill River	53 14 52	60 47 21	F	6	HS
NF03OE0030	Minipi River	52 36 53	61 11 11	F	4	HS
NF03OE0032	Pinus River	53 08 52	61 33 31	F	4	HS
NF03OE0033	Big Pond Brook	53 30 43	60 17 31	F	4	HS
NF03PB0025	Naskaupi River	54 07 54	61 25 45	F	4	HS
NF03QC0001	Eagle River	53 27 54	57 33 29	F	4	HS
NF03QC0002	Alexis River	52 38 57	56 52 17	F	4	HS

**LABRADOR ASHKUI**

NF02XA0029	Lac Fourmont	52 01 58	60 18 40	F	3	HS
NF03NG0032	Shipiskan Lake West	54 39 22	62 24 21	F	3	HS
NF03NG0033	Shipiskan Lake North	54 39 42	62 21 54	F	3	HS
NF03NG0034	Shipiskan Lake East	54 37 24	62 12 58	F	3	HS
NF03OD0011	East Metchin River	53 26 07	63 14 03	F	3	
NF03OD0012	Wilson R. E. Branch	53 18 33	62 55 11	F	3	
NF03OE0034	Minipi Lake	52 32 55	60 57 43	F	3	HS
NF03OE0035	Dominion Lake	52 43 45	61 45 17	F	3	HS
NF03OE0036	Pinus River	53 02 25	61 17 45	F	3	
NF03OE0037	Cache River	53 11 33	62 12 11	F	3	
NF03PB0027	Naskaupi River	53 47 44	60 50 26	F	3	HS
NF03PB0028	Cape Caribou River	53 37 16	60 24 52	F	3	HS
NF03PB0029	Northwest River	53 31 18	60 08 31	F	3	
NF03PB0030	Seal Lake Narrows	54 19 55	61 38 27	F	3	HS
NF03PB0032	Susan River	53 44 17	60 56 48	F	3	HS
NF03PB0037	Wuchusk Lake	54 23 43	61 47 09	F	3	HS
NF03QA0044	Carter Basin	53 29 52	59 52 25	F	3	HS
NF03QA0045	Kenamu River	53 28 34	59 55 01	F	3	HS



**LABRADOR VOISEY'S BAY**

NF03NE0001	Reid Brook	56 22 22	62 09 43	C	4	HS/RT
NF03NE0002	Camp Pond Brook	56 20 32	62 06 24	C	4	HS/RT
	Lower Reid Brook*	56 18 18	62 05 34	C	4	HS/RT

**P** - Provincial

**F** - Federal

**HS** - Helicopter site

**C** - Contributed

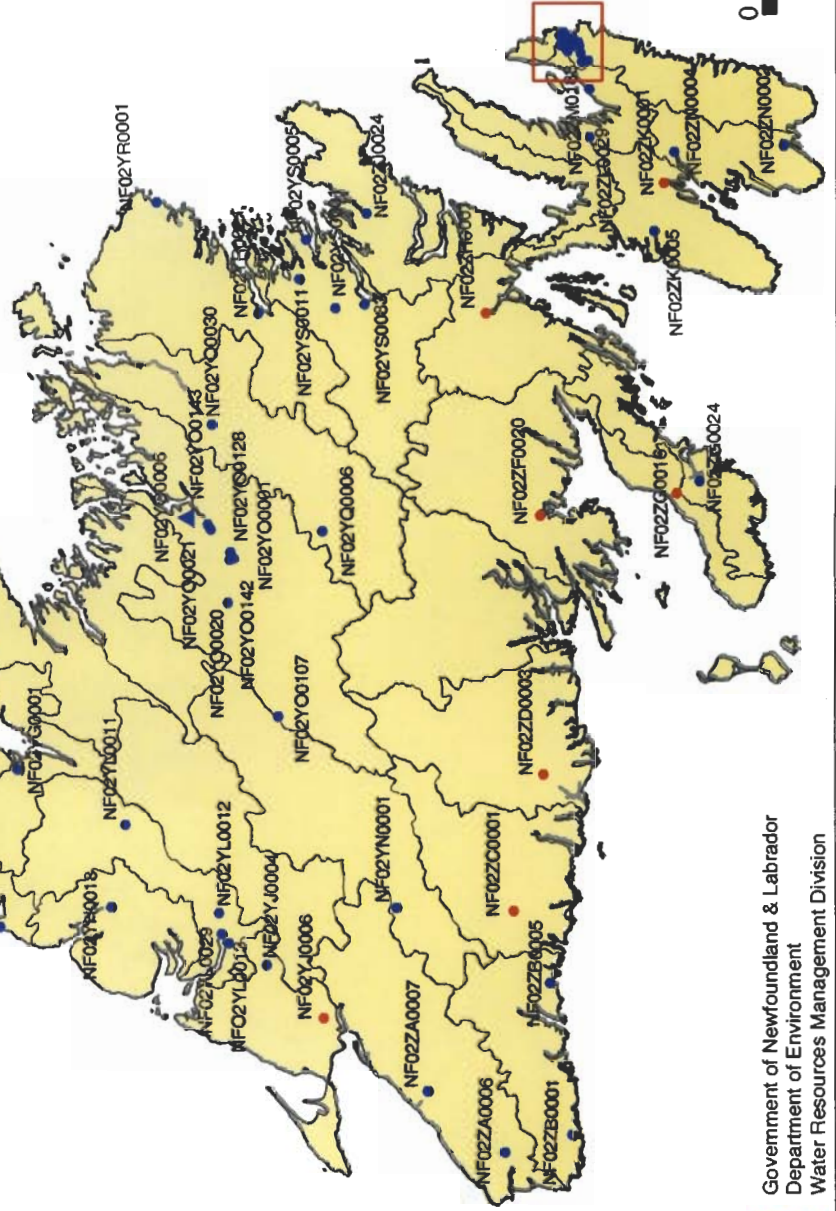
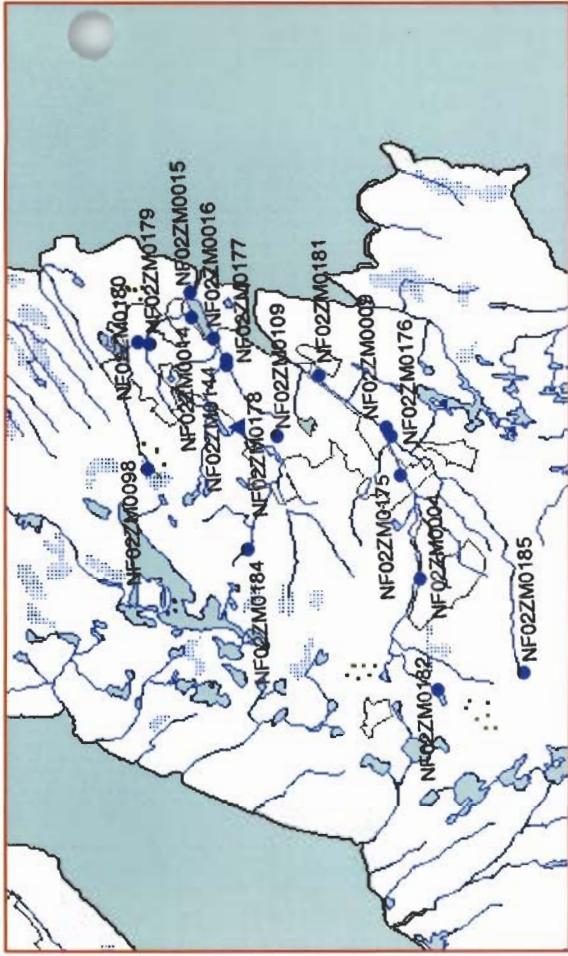
**RT** - Real-Time Station

\* The hydrometric station has not yet been established on Lower Reid Brook thus the exact coordinates and name are subject to change.

- Notes:
1. A total of 95 stations will be sampled during 2003-2004.
  2. Monthly stations will be sampled in the first week of every month; bi-monthly samples in the first week of April, June, August, October, December, and February and quarterly samples in the first week of April, July, October, and January.
  3. The focus is to optimize the number of stations sampled in the 2003-04 work schedule, analyse existing data, and prepare technical reports regarding water quality at index stations. Municipal wastewater discharge monitoring will be put on hold for this year.
  4. For Ashkui sites, samples are collected 3 times a year and analysed at the Moncton Laboratory for physical parameters, major ions, nutrients, Hg (trace), metals and for chlorophyll at DalTech.



# Water Quality Stations 2003-04 Newfoundland



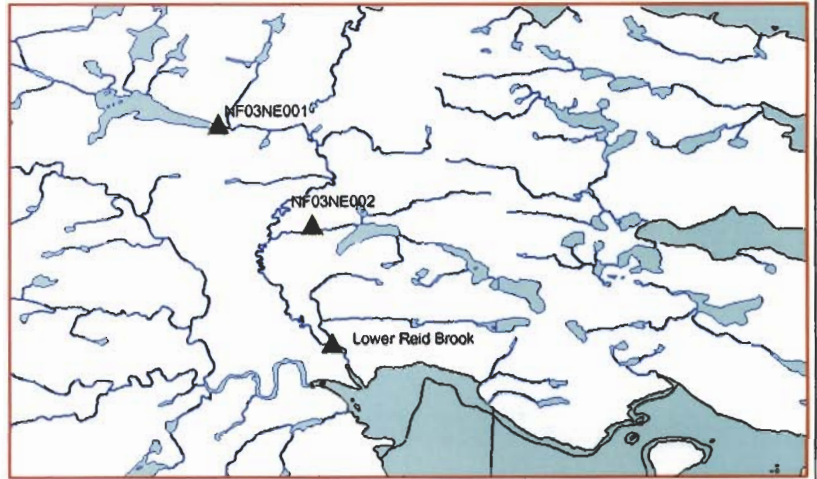
### Legend

**Station Type**

- Federal
- Provincial
- ▲ Real Time



# Water Quality Stations 2003-04 Labrador



## Legend

### Station Type

- ▲ Contributed - Real Time
- Federal





**Schedule C**  
**Sampling Media and Analytical Parameters**

## Sampling Media and Analytical Parameters 2003 - 2004

Station #	Description	Sampling Media	Analytical Group	Analysed by:
<b><u>EASTERN REGION</u></b>				
NF02ZG0024	Tides Brook	W	W1, W2, W3	F
NF02ZK0005	Northeast River	W	W1, W2, W3	F
NF02ZL0029	Goulds Brook	W + M	W1, W2, W3, W5	F
NF02ZM0004	Waterford River	W + M	W1, W2, W3, W5	F
NF02ZM0009	Waterford River	W + M	W1, W2, W3, W5	F
NF02ZM0014	Virginia River	W + M	W1, W2, W3, W5	F
NF02ZM0015	Quidi Vidi Outlet	W + M	W1, W2, W3, W5	F
NF02ZM0016	Rennies River	W + M	W1, W2, W3, W5	F
NF02ZM0098	Virginia River	W + M	W1, W2, W3, W5	F
NF02ZM0109	Mundy Pond	W + M	W1, W2, W3, W5	F
NF02ZM0144	Kelly's Brook	W + M	W1, W2, W3, W5	F
NF02ZM0175	Waterford River	W + M	W1, W2, W3, W5	F
NF02ZM0176	South Brook	W + M	W1, W2, W3, W5	F
NF02ZM0177	Rennies River	W + M	W1, W2, W3, W5	F
NF02ZM0178	Learys Brook	W + M	W1, W2, W3, W5	F
NF02ZM0179	Virginia River	W + M	W1, W2, W3, W5	F
NF02ZM0180	Virginia River	W + M	W1, W2, W3, W5	F
NF02ZM0181	Waterford River	W + M	W1, W2, W3, W5	F
NF02ZM0182	Waterford River	W + M	W1, W2, W3, W5	F
NF02ZM0183	Kelligrews River	W + M	W1, W2, W3, W5	F
NF02ZM0184	Learys Brook	W + M	W1, W2, W3, W5	F
NF02ZM0185	South Brook	W + M	W1, W2, W3, W5	F
NF02ZN0002	Northwest Brook	W	W1, W2, W3	F
NF02ZN0004	Salmonier River	W + M	W1, W2, W3, W5	F
NF02ZG0016	Garnish River	W	W1, W2, W3	F
NF02ZH0001	Pipers Hole River	W	W1, W2, W3	F
NF02ZK0001	Rocky River	W	W1, W2, W3	F
<b><u>CENTRAL REGION</u></b>				
NF02YM0004	South West Brook	W	W1, W2, W3	F
NF02YO0143	Exploits River	W + M	W1, W2, W3, W5	F
NF02YO0142	Cordroy Brook	W + M	W1, W2, W3, W5	F
NF02YO0001	Exploits River	W + M	W1, W2, W3, W5	F
NF02YO0006	Peter's River	W + M	W1, W2, W3, W5	F
NF02YO0020	Exploits River	W + M	W1, W2, W3, W5	F
NF02YO0021	Exploits River	W + M	W1, W2, W3, W5	F
NF02YO0107	Exploits River	W + M	W1, W2, W3, W5	F
NF02YO0128	Exploits River	W + M	W1, W2, W3, W5	F
NF02YQ0006	North W. Gander River	W	W1, W2, W3	F
NF02YQ0030	Gander River	W + M	W1, W2, W3, W5	F
NF02YR0001	Pound Cove Brook	W	W1, W2, W3	F
NF02YR0021	Middle Brook	W	W1, W2, W3	F
NF02YS0001	Terra Nova River	W + M	W1, W2, W3, W5	F
NF02YS0005	Southwest Brook	W + M	W1, W2, W3, W5	F
NF02YS0011	Terra Nova River	W + M	W1, W2, W3, W5	F
NF02YS0083	Northwest River	W	W1, W2, W3	F
NF02ZJ0024	Southern Bay River	W	W1, W2, W3	F
NF02ZF0020	Bay du Nord River	W	W1, W2, W3	F

  
**WESTERN REGION**

NF02YA0001	Ste. Genevieve	W	W1, W2, W3	F
NF02YE0005	Western Brook	W + M	W1, W2, W3, W5	F
NF02YG0001	Main River	W	W1, W2, W3	F
NF02YH0018	Lomond River	W + M	W1, W2, W3, W5	F
NF02YJ0004	Pinchgut Brook	W	W1, W2, W3	F
NF02YL0011	Humber River	W + M	W1, W2, W3, W5	F
NF02YL0012	Humber River	W + M	W1, W2, W3, W5	F
NF02YL0013	Corner Brook	W + M	W1, W2, W3, W5	F
NF02YL0029	Wild Cove Brook	W + M	W1, W2, W3, W5	F
NF02YN0001	Lloyds River	W	W1, W2, W3	F
NF02ZA0006	Grand Codroy River	W	W1, W2, W3	F
NF02ZA0007	Crabbe's River	W	W1, W2, W3	F
NF02ZB0001	Isle Aux Morts River	W	W1, W2, W3	F
NF02ZB0005	Cing Cerf Brook	W	W1, W2, W3	F
NF02ZC0001	Grandy Brook	W	W1, W2, W3	F
NF02ZD0003	Grey River	W	W1, W2, W3	F
NF02YC0001	Torrent River	W	W1, W2, W3	F
NF02YJ0006	Harrys River	W	W1, W2, W3	F

**LABRADOR**

NF02XA0001	Little Mecatina River	W	W1, W2, W3	F
NF03NF0013	Ugjektok River	W	W1, W2, W3	F
NF03OC0012	Atikonak River	W	W1, W2, W3	F
NF03OD0011	East Metchin River	W	W1, W2, W3	F
NF03OE0001	Churchill River	W	W1, W2, W3	F
NF03OE0030	Minipi River	W	W1, W2, W3	F
NF03OE0032	Pinus River	W	W1, W2, W3	F
NF03OE0033	Big Pond Brook	W	W1, W2, W3	F
NF03PB0025	Naskaupi River	W	W1, W2, W3	F
NF03QC0001	Eagle River	W	W1, W2, W3	F
NF03QC0002	Alexis River	W	W1, W2, W3	F

**LABRADOR ASHKUI**

NF02XA0029	Lac Fourmont	W	W1, W2, W3	F
NF03NG0032	Shipiskan Lake West	W	W1, W2, W3	F
NF03NG0033	Shipiskan Lake North	W	W1, W2, W3	F
NF03NG0034	Shipiskan Lake East	W	W1, W2, W3	F
NF03OD0011	East Metchin River	W	W1, W2, W3	F
NF03OD0012	Wilson R. East Branch	W	W1, W2, W3	F
NF03OE0034	Minipi Lake	W	W1, W2, W3	F
NF03OE0035	Dominion Lake	W	W1, W2, W3	F
NF03OE0036	Pinus River	W	W1, W2, W3	F
NF03OE0037	Cache River	W	W1, W2, W3	F
NF03PB0027	Naskaupi River	W	W1, W2, W3	F
NF03PB0028	Cape Caribou River	W	W1, W2, W3	F
NF03PB0029	Northwest River	W	W1, W2, W3	F
NF03PB0030	Seal Lake Narrows	W	W1, W2, W3	F
NF03PB0032	Susan River	W	W1, W2, W3	F
NF03PB0037	Wuchusk Lake	W	W1, W2, W3	F
NF03QA0044	Carter Basin	W	W1, W2, W3	F
NF03QA0045	Kenamu River	W	W1, W2, W3	F



**LABRADOR VOISEY'S BAY**

NF03NE0001	Reid Brook	W	W1, W2, W3	F
NF03NE0002	Camp Pond Brook	W	W1, W2, W3	F
	Lower Reid Brook	W	W1, W2, W3	F

<b>W</b>	-	Water
<b>M</b>	-	Microbiology
<b>S</b>	-	Sediment
<b>B</b>	-	Biota
<b>F</b>	-	Federal lab

\* Refer to Table C.1 for analytical group codes

Notes:

1. Microbiological (total and fecal coliform) analysis is carried out by the Provincial Public Health Lab.
2. All other analytical work is carried out by federal labs in Burlington and Moncton
3. A total of 500 water samples will be analysed by federal labs in Burlington and Moncton.
4. Water quality parameters (temperature, pH, dissolved oxygen, and conductivity) are analysed by Water Quality Officers in the provincial environment lab, as well as by Burlington and Moncton labs.

**Table C.1**  
**Analytical Parameters**

Parameter Set	Analysis Type	Parameter Group
<b>1) Water - Physical Parameters, Major Ions and Nutrients</b>		
Temperature	Field	W1
pH	Field & Lab	W1
Specific Conductance	Field & Lab	W1
Dissolved Oxygen	Field	W1
Turbidity	Lab	W1
Colour	Lab	W1
Calcium (Diss.)	Lab	W1
Magnesium (Diss.)	Lab	W1
Potassium (Diss.)	Lab	W1
Sodium (Diss.)	Lab	W1
Alkalinity Total or Gran	Lab	W1
Chloride (Diss.) IC	Lab	W1
Sulphate (Diss.) IC	Lab	W1
Dissolved Organic Carbon	Lab	W1
Total Nitrogen	Lab	W1
Nitrate and Nitrite (Diss.)	Lab	W1
Total Phosphorus	Lab	W1
Silica Reactive	Lab	W1
<b>2) Water - Total Extractable Metals</b>		
Aluminum      Barium	ICAP	W2
Iron              Beryllium	ICAP	W2
Copper           Chromium	ICAP	W2
Zinc               Manganese	ICAP	W2
Cadmium         Molybdenum	ICAP	W2

Parameter Set		Analysis Type	Parameter Group
Lead	Lithium	ICAP	W2
Cobalt	Strontium	ICAP	W2
Nickel	Vanadium	ICAP	W2
<b>3) Water - Total Dissolved Metals</b>			
Aluminum		Lab	W3
Iron		Lab	W3
Copper		Lab	W3
Zinc		Lab	W3
Cadmium		Lab	W3
Lead		Lab	W3
Cobalt		Lab	W3
Nickel		Lab	W3
<b>4) Water - Selected Organics</b>			
OC/PCB		Lab	W4
<b>5) Water - Bacteria</b>			
Total Coliform		Lab	W5
Fecal Coliform		Lab	W5
<b>6) Sediments - Metals and Organics</b>			
Lead		Lab	S1
Copper		Lab	S1
Zinc		Lab	S1
Mercury		Lab	S1
Iron		Lab	S1
Aluminum		Lab	S1
Cadmium		Lab	S1
Chromium		Lab	S1
OC/PCB		Lab	S1
Organic Carbon		Lab	S1
Particle Size Analysis		Lab	S1



Parameter Set	Analysis Type	Parameter Group
<b>7) Fish - Metals, Organics and Physiology</b>		
Lead	Lab	B1
Copper	Lab	B1
Zinc	Lab	B1
Mercury	Lab	B1
Cadmium	Lab	B1
OC/PCB	Lab	B1
Lipid Content	Lab	B1
Physiology	Lab	B1
<b>8) Fish - Organics</b>		
Scan	Lab	B2



**Schedule D**  
**Data Management and**  
**Technical Reports**

### Data Management and Technical Reports

Activity	Responsible Agency
<b>1. Quality Assurance in the National Water Quality Laboratory and Moncton Laboratory</b>	
1.1 Quality Control Procedures	Environment Canada
1.2 Guidelines for Good Laboratory Practices	Environment Canada
1.3 Guidelines for Instrument Performance	Environment Canada
<b>2. Management of Water Quality Data</b>	
2.1 Data Recording, Documentation and Validation	Environment Canada
2.2 Data Screening and Verification	Environment Canada
2.3 Data Audits, Custody and Transfer	Environment Canada
2.4 Management of National Water Quality Database (ENVIRODAT)	Environment Canada
2.5 Downloading and Processing of Water Quality Data	Newfoundland and Labrador Environment, Water Resources Management Division
2.6 Management of Provincial Water Quality Database	Newfoundland and Labrador Environment, Water Resources Management Division
2.7 GIS Application for Data Reporting: <ul style="list-style-type: none"> <li>• Site Documentation Database</li> <li>• Water Quality Index Database</li> <li>• Bacteriological Database</li> </ul>	Environment Canada, Environmental Science and Integration Division (Sarah Hall; Todd Smith; Vincent Mercier) & Newfoundland and Labrador Environment, Water Resources Management Division
2.8 Management and Updating of Water Quality Index Web-site	Newfoundland and Labrador Environment, Water Resources Management Division
2.9 Management and Updating of Real Time Water Quality Data and Web-site	Newfoundland and Labrador Environment, Water Resources Management Division
2.10 Management and Updating of Site Documentation Database	Newfoundland and Labrador Environment, Water Resources Management Division
2.11 Management and Updating of Water Quality Index Database	Newfoundland and Labrador Environment, Water Resources Management Division

Activity	Responsible Agency
2.12 Management and Updating of Bacteriological Database	Newfoundland and Labrador Environment, Water Resources Management Division
2.13 Development and Application of Water Quality Index for Groundwater	Newfoundland and Labrador Environment, Water Resources Management Division
2.14 Preliminary work on the development of data processing protocols for a dynamic link between ENVIRODAT and Water Quality Index	Newfoundland and Labrador Environment, Water Resources Management Division
2.15 Transfer of Technology	Environment Canada, Environmental Science and Integration Division (Sarah Hall; Todd Smith; Vincent Mercier)
2.16 Incorporation of expert opinion by on-line validation of Water Quality Index	Environment Canada, Environmental Science and Integration Division (Sarah Hall; Todd Smith; Vincent Mercier)
2.17 Develop dynamic link between ENVIRODAT and Water Quality Index code	Environment Canada, Environmental Science and Integration Division (Sarah Hall; Todd Smith; Vincent Mercier)
<b>3. Technical Documents</b>	
3.1 Site Documentation Report Update (printed version)	Newfoundland and Labrador Environment, Water Resources Management Division
3.2 Fact Sheets on selected Rivers	Newfoundland and Labrador Environment, Water Resources Management Division
3.3 Water Quality of St. John's Rivers	Newfoundland and Labrador Environment, Water Resources Management Division
3.4 Water Quality Index - Research and Development	Newfoundland and Labrador Environment, Water Resources Management Division
3.5 Atlantic Region Water Quality Index Project	Environment Canada & Newfoundland Environment, Water Resources Management Division
3.6 Intensive Survey Report	Newfoundland and Labrador Environment, Water Resources Management Division

## **Schedule E**

### **Special Studies**

A special study for water, biota and sediment survey will be planned for a selected basin in this fiscal year, in consultation with Environment Canada.



**Schedule F**  
**Meeting Minutes**



**From:** Haseen Khan  
**To:** Cook, Art; Pollock, Tom [Moncton]  
**Date:** Sat, Mar 30, 2002 11:30 AM  
**Subject:** Water Quality Agreement Meeting in Moncton - March 20

Meeting highlights and followup on action items is as follows:

1. Tom Pollock, Art Cook and Hassen Khan met in Moncton to discuss the future activities under the Water Quality Agreement.

2. Meeting highlights are as follows:

2.1 We will collect about 500 samples under the agreement during 2002-03. All samples will be shipped to Burlington.

2.2 We will try to optimize number of stations in 2002-03 annual work schedule.

2.3 Municipal wastewater discharge monitoring will be on hold for the time being.

2.4 There is need for the evaluation of water quality monitoring network for long term planning. We will initiate work in this area.

2.5 We will plan one special study in each fiscal year for two to three weeks extensive survey. The study will select sensitive areas (urban rivers, industrial discharges, land use pressures, etc.) and sampling will focus on biota and sediments. These samples will be shipped to Moncton Lab. Haseen and Art will work out further details.

2.6 Labrador network is Environment Canada priority. We will try to make at least one trip to this area and compliment Environment Canada monitoring activities.

2.7 Art will provide Haseen Burlington contact and Haseen will provide Art with the contact information of Water Quality Agreement staff. Art has already action his item. I will action my item in a separate e-mail.

Tom and Art - Any comments or suggestions.

Thank you.

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CC: Khan, Ali; WQ Group

**DRAFT**

**Minutes  
Canada-Newfoundland Water Agreement Meeting  
May 14 2002  
St. John's Newfoundland**

Attendees: Environment Canada  
John Merrick  
Bill Brimley  
Calvin Baker  
Howie Wills  
Tom Pollock  
Geoff Howell  
Art

Attendees; Newfoundland Department of Environment and Labour  
Martin Goebel  
Haseen Khan  
Ken Rollings

1. **Opening Remarks**

John Merrick

- federal succession planning – anticipated retirements of Bill Brimley, Calvin Baker and Fred Lindeijer, - new technologist recruits in WSC, arrival of Perry Pretty in Newfoundland office.
- water engineering planning in Branch – three water engineers anticipated for Meteorological Service of Canada within a year for hydrometric and water science programs.
- changes coming for climate program at both volunteer and reference stations. National network review and need for paperless data entry.
- Planning for YYT water meeting in Oct 2002
- intro of Howie Wills as senior tech in office

Martin Goebel

- progress in drinking water programs – new data manager for water programs and for web based applications.
- Some mobile staff resources for training will contribute to overall program
- water resources legislation is passed and will be signed to law shortly along with a new environmental protection act. Act increases potential for studies, regulation, water rights registry and usage charges, etc.

Haseen Khan

- tribute to Tom for his work over the period with the province. Expressions of appreciation to Bill as well just in case this is his last year too.

Tom Pollock

- Tom's swan meeting.
- Comments on ambitious program that Newfoundland has, satisfaction with progress and future. -- passing torch to Geoff Howell, Manager of Environmental Science Interpretation Division.

Geoff Howell

- boosted lab profile & profile of ECB water. bringing water quality people back together into a science group,
- developing automated water quality sys.
- Group of four tools for data info and web tool development.
- brought all of the GIS and data management groups into program with new tools, new staff and expertise.
- Northern ecosystem initiative work.

2. **Annual Hydrometric Agreement Report**

cost planner review, schedules A&D.



- last year, staff shortages caused some repairs to be delayed
- this year, salary increases will be seen due to new staff and new contracts.
- station units changed in Jan, taking some stations out of agreement into NFLP contract
- chart showing 1975 costs per station, vs 75 costs ramped by CPI to 2000, vs 2002 actual costs.
- Some discussion of contracts included here for clarification of overall costing and the development of Sched D
- noted by Haseen that Province can only raise 310K leaving a shortfall of ~10K

3. >>>Province can only raise \$301<<<

- 4.
- consider some form of in-kind work to reduce that balance.
  - Discussion on how to deal with creeping costs – e.g., chopper charters, etc.
  - Risk management recognition of fact that contracts are providing substantial support to program. Loss of a contract could mean significant impact. Need for a contingency plan in event of contract loss.
  - Schedules A and D were tabled and accepted.
  - Summary chart of annual costs up to 2001-02 was tabled and will be updated to include 2002-03 . Sum of Annual costs shown on cost planner indicates a reduction in amounts owed to NF by Environment Canada.

**ACTION Howell/Brimley:** water quality sampling increases by MSC to aid ECB/Pollock-Howell. Opportunities on Bruce Turners side for ECB. Will talk offline re sampling schedules on both side (WSC/ECB). Agreement of a 5K contribution to MSC from ECB for increasing sampling and air charter time

**ACTION Brimley:** need a letter from Environment Canada by last week of August describing the anticipated operational hydrometric cost increases for each of five years. Leave out mention of indirect cost increases beginning next year.

**ACTION Khan/Brimley:** develop a contingency plan for loss of a contract.

5. **Contracts**

- 4 days have been included for data processing for contract stations

**IOCC**

- background on previous arrangements with Goler and Jacques and Acres
- only a 6 month contract with EC
- cost projections based on assumption that contract will be ongoing
- WSC installed 8 sites last fall.

**Triton Brook**

- initiative between fed/fisheries/agrifoods/province to assess impacts of logging on water conditions upstream of Gambo pond.
- Anticipate 5-10 year project

6. **HYDAT CD**

- latest one is late but is expected to be in the mail shortly.
- This will be the last national CD – large pressing. May be regional ones. Quebec missing due to lateness of data processing.
- Cost to others will be the cost of producing ~\$100.
- Web based sources will allow downloads by station not by groups of stations due to bandwidth considerations.

7. **Decommissioning of mothballed SITES**

- Hg cleanup. Short description of assessment and cleanup process. Originally 50 sites now down to 20 to be completely decommissioned. Report to be provided to province by Environment Canada mid-summer. Cleanup to be continued this year. Regional cleanup costs are about 50% of national average. Bill Brimley is in process of developing MOU to describe our standards and request approval for those standards to be accepted by Newfoundland.
- Haseen requested a separate/ letter MOU for costs.

other infrastructure

- discussion of non Hg issues such as decommissioning of cableways, etc.

8. **Agreement renewal**

- awaiting Oct administrator's meeting.

9. **Indirect Costs**

- revised spreadsheet tabled to demonstrate new shareable costs.
- impact on Newfoundland will be approximately 36.7K beginning 1 Apr 2003.
- Need a mechanism to deal with one time injections of large costs.

- Province has compiled a list of in-kind contributions by NF, by project and hours/ days. No \$ values assigned as of yet.

- Request for preliminary costing.

**ACTION Khan:** Soft copy of provincial in-kind contributions to be sent for inclusion in minutes.

**ACTION Brimley:** federal Indirect costing template to be provided to Newfoundland.

10. **Met Climate stations (Ken Rollings)**

- changes coming for climate program both volunteer and reference stations
- network review / keep in view water relationships / areal coverage of province / need for real time precipitation data
- reductions in national network – largely out west. Most of regional sites in Atlantic are not at risk, mainly because of the provincially funded network.
- At risk are stations which will not or cannot move to automated data entry.
- Invoicing problem from March 2002 sorted out and corrections being applied.
- the necessity for keeping the Newfoundland network from shrinking was emphasized.

11. **Water quality agreement**

**PROVINCE**

prepared an annual work schedule 2002-03 based on Moncton discussions. Contains minutes of last year's meetings

water quality index. Province involved since 1996. Used CCME model. Modified CCME model and added new features. Going on NF web shortly. Currently only freshwater but saltwater will be incorporated if fisheries interested. Tested for drinking quality and aquatic life.

Reduced numbers of sites, stable data sites,  
copies of annual work schedule 2002-03 to Calvin for reference.

Province: Prepared a site documentation report. Includes....

Province: Planning on preparing fact sheets on selected rivers.

Fed province cooperation with geoffs unit with respect to data management.

Mention of collection of sediment samples by province.

Northern ecosystem initiative.

?? any documents yet?? Province is interested in getting any done. Ashkui conference doc being finalized. Geoff will forward other docs to Haseen.

Short discussion on ashkui identification.

Water wizard project underway from Ottawa with respect to water questions from public, providing access to a variety of data bases

established a real time water quality station last year. This year two more planned.

**FEDS**

mention of credits with Burlington

new capabilities to analyze wastewater chemicals

creativity

2-3 months support scheduled from Geoff's unit for on site in NF.

## Minutes on Water Quality Agreements.

Haseen Khan has prepared the Agreement annual work schedule and circulated copies. The Work Schedule will be reviewed, edited and then signed off by the Provincial and Federal Administrators.

Water Quality Index -started in 1996. The province has a long history in the development water quality indices and has been active in the development of CCME Index. They are in the process of modifying the Index to add new features and to make it more user friendly. The current focus is to expand the index to look at freshwater aquaculture with the potential to consider a marine aquaculture application. There was discussion on building better connections on the indicators front and an offer was extended to Vincent Mercier to visit the province in the near future.

Haseen indicated interest in the Northern Ecosystem Initiative work in Labrador and asked that any publications related to this work be sent to the province. Action : Geoff Howell

The province is looking into potential site reduction and is initiating an optimization study. This will hopefully provide flexibility in the system to enable new projects and studies. Given the changes to the program over the past few years, the province will be updating the Site Documentation Report. Other proposed publications include river specific fact sheets and a drinking water survey report.

Haseen mentioned data backlogs and delays in getting information on the website. This should be remedied with the new data management position. The province will contact Sarah Hall to discuss potential collaboration in this area.

Tom Pollock initiated a discussion on moving from standard water quality parameters (e.g. metals, major ions and nutrients) to some of the new and exotics measures related to issues such as pharmaceuticals and MWW. The potential for these analyses now exists in the Moncton lab but we need to work together to maximize capability and look for flexibility.

There was also some discussion on in situ water quality monitoring with 3 Hydrolabs being installed at Learys Brook, Gander River and Humber River.

### 12. New items

- Haseen mentioned the backlog in annual reports, and that updates are needed in order to be prepared for an anticipated audit.

**ACTION Brimley:** bring all annual reports up to date.

- Discussion of storm Gabriel and impacts on water flow and the maximum flow recalculations made necessary – example was Leary Brook. Peak measurement resulted in 2 weeks of work refining extension on the curve, then re-assessing all other related curves. All previous high water projections over period of record were reviewed. From 1995 on used Compumod, but did go back and review others. Before 1995 used a manual digitizing process which enables instantaneous flows but much work is needed to provide daily/annual monthly data which are on Vax files. Work is ongoing.



**From:** Haseen Khan  
**To:** Goebel, Martin  
**Date:** Wed, Nov 27, 2002 7:28 AM  
**Subject:** Halifax Trip

Martin - For your information.

I was in Halifax to attend to the following business. The trip highlights are as follows:

1. November 25 meeting was regarding the new CISE (Canadian Information System for Environment) and its application in Atlantic Canada. CISE Director (Joanne Frapier) along with Geoff Howell of Environment Canada and four representatives (Haseen, Darrell, Don and Bruce) of Atlantic provinces were present in the meeting. Newfoundland is part of the first pilot project as we have long-term continuous ambient water quality data. The project will integrate GIS, web enabled database, and water quality index. CISE will pay us \$10K to expedite some of the tasks assigned to us as a part of the pilot project.

2. November 26 meeting was regarding the CCME Atlantic Canada Water Quality Index project. Meeting was attended by Pierr-Yves, Wayne, and Vincent of Environment Canada, four Atlantic members of CCME Water Quality Task Group and the consultant. The project is moving as per schedule. Task Group provided the consultant direction for next four to five months of work.



**From:** Haseen Khan  
**To:** Howell, Geoff  
**Date:** Fri, Mar 21, 2003 11:31 am  
**Subject:** Meeting Follow-up and Action Items

Hi Geoff;

Thanks to you, Sarah, Art and Dave for coming to St. John's. We feel it was a very productive meeting. We were able to review current progress of work and identify path forward for short-term and long-term tasks. The highlights of agreed action items are as follows:

### **Environment Canada (EC) and Newfoundland and Labrador Department of Environment (NLDOE)**

#### **Immediate Short-term Deliverables (April 30, 2003)**

1. Site doc database with Development Pressure field added (NLDOE)
2. Water Quality Index database with WQI statistics (F1, F2 and F3 and appropriate summary statistics) fields added (NLDOE).
3. Bacteriological database already delivered. No further work under short-term (NLDOE)
4. Project Description (EC and NLDOE)
5. Joint Presentation/Paper (EC and NLDOE)
6. Refinement to WQI Code to include F1, F2 and F3 and appropriate summary statistics (NLDOE)
7. Data processing protocols/assumptions used for applying WQI Model (NLDOE)
8. Refine the layout of the station profile page (EC)
9. Refine the layout of WQI page to include pressure, comments, limitations and statistical fields (EC)
10. Access to updated data on ENVIRODAT (EC)
11. Provide lay-out of the joint web page (EC)

#### **Mid-term Deliverables (Fall 2003)**

1. Refinements of bacteriological database to include interpretation columns (NLDOE)
2. Updated Water Quality Index database with flagging for contaminants and bacteriological parameters (NLDOE)
3. Preliminary work on the development of data processing protocols for a dynamic link between ENVIRODAT and WQI (NLDOE)
4. Refinement to WQI Code to include bacteriological and contaminants flagging (NLDOE)
5. Preliminary work on the application of WQI to groundwater (NLDOE)
6. Transfer of technology (EC)
7. Work on additional layers (geology etc.) of mapping components (EC)

### Long-term Deliverables

1. First annual update to Site Doc database (NLDOE)
2. First bi-annual update to bacteriological database (NLDOE)
3. First annual update to Water Quality Index database (NLDOE)
4. Development of data processing protocols for a dynamic link between ENVIRODAT and WQI in conjunction with Environment Canada (NLDOE)
5. Work on the application of WQI to groundwater (EC and NLDOE)
6. Hosting of databases and access to NLDOE dataserer (NLDOE)
7. Application of WQI to other media (sediment and biota in reference to special studies undertaken under the Agreement) (NLDOE)
8. Dynamic calculation of WQI with ability for the user to calculate on different data sub-sets (NLDOE)
9. Development of Site specific objectives for Newfoundland (NLDOE)
10. Incorporation of expert opinion by on-line validation of WQI (EC)
11. Develop dynamic link between ENVIRODAT and WQI code (EC)
12. Transfer of technology (EC)

Annual work schedule will be revised as per our discussion and forwarded to you for review.

I will send you a separate e-mail regarding Richard's possible extension and CISE annual meeting in Quebec City.

CC: [Dartmouth], Hall, Sarah; Cook, Art; Khan, Ali; Paterson, Renee

